

A1291 External SCSI Kit Performance Series II



Installation Guide

A1291 SCSI Kit Performance Series II

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Installation of this product does require some small degree of mechanical ability and precautions against electrostatic discharge. The user assumes all risks when this installation is performed by anyone other than a certified GVP dealer.

Use of this product constitutes your acceptance of the terms stated herein.



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FCC Class "B" Radio Frequency Emissions Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

CAUTION: Only equipment with shield-grounded cables (*computer input-output devices, terminals, printers, etc.*), certified to comply with Class B limits, can be attached to this device. Operation with non-certified equipment may result in communications interference.

Your house AC wall receptacle must be a three-pronged type (*AC ground*). If not, contact an electrician to install the proper receptacle. If a multi-connector box is used to connect the computer and peripherals to AC, the ground must be common to all units.

If necessary, contact your dealer or an experienced radio-TV technician for additional suggestions. You may find the following FCC booklet helpful: *"How to Identify and resolve radio-TV interference problems."* The booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock no. 004-000-00345-5.



Service & Support

Your Configuration

Your GVP Customer Number _____

Name _____ Date _____

Address _____

City _____ State _____

Country _____ Postal Code _____

Telephone Number () _____

GVP Product _____

Serial Number _____ Revision (version) # _____

Describe the symptoms, and the conditions under which they occur:

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CompuServe Information Service

Technical Assistance, as well as product information, is available on CompuServe (CIS). Go GVP at any prompt or send direct EMail to GVP Tech at 72662,51.

Reporting Problems

If possible, try to determine if the problem is repeatable (*i.e., it occurs under predictable conditions*), and be prepared to describe in detail the particular symptoms and the system configuration in use when it happens.

Whether you're faxing or writing about your problem, please take the time to complete and submit a copy of this form to GVP; complete the form before calling, as well, so you have all the pertinent information at hand. The more detailed information you can provide, the better our support personnel will be able to assist you.

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2. Hardware Installation

CAUTION: During installation of the Performance Series II A1291 External SCSI Kit, be sure to observe electrostatic safety precautions.

Electrostatic shock can damage delicate electronic components, such as those found on the SCSI Kit and Amiga A1200 motherboard.

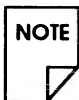
To protect against this, periodically drain electrostatic potential from your fingers by touching a grounded metal surface. If you have one, use an anti-static wrist strap to further protect against damage.

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What you need



You will need a small-to-medium sized cross-point screwdriver to install the A1291 SCSI Kit. You may also need a small, flat-blade screwdriver or pen-knife to remove the expansion port cover from the rear panel of your Amiga.



>>>

It is assumed that you have successfully installed a Performance Series II expansion product in the A1200's expansion bay, and that it is in working condition. This product will not function without a Performance Series II expansion unit.

Procedure

Before beginning, remove all peripheral cables and the power cord from your A1200.

- 1) Turn the A1200 over. To protect the keyboard and finish of your computer, lay it on a towel or other soft surface.
- 2) Locate and remove the plastic expansion port cover from the rear panel of your A1200. This cover is held by four tiny plastic tabs. It flexes easily and can be pried free using a small, flat-blade screwdriver or pen-knife.

Take care to avoid breaking the plastic tabs. When the cover is removed, put it somewhere safe for future use.

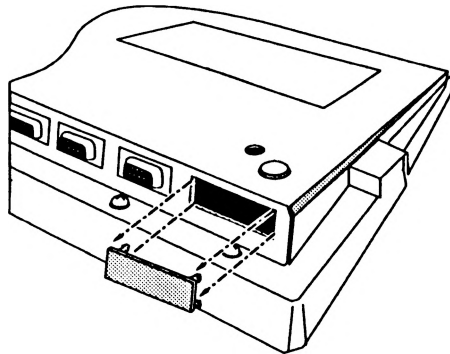


Figure 2.1 – Remove expansion port cover from A1200.

- 3) Insert the A1291 SCSI board—component side down—into the expansion port opening in the Amiga's rear panel (see Figure 2.2).



B. Service & Support

General Information

GVP supports hardware and software products through our network of Authorized Dealers. We strongly recommend you work with your supplying dealer first to resolve problems you may encounter. GVP Authorized Dealers have access to significant technical information and support from GVP and in most cases will offer the fastest solution.

If necessary, you can get assistance from GVP's Technical Support department via fax, telephone or mail:

Fax (215) 337-9922 24 hours

Phone (215) 354-9495 9:15 a.m. – Noon
(*Phones closed Noon to 1:45*)
1:45 p.m. – 6:00 p.m.
(*all times U.S. Eastern*)

Mail Great Valley Products, Inc.
657 Clark Ave.
King of Prussia, PA 19406

Electronic Assistance

GVP provides a 24 hour Bulletin board Service (BBS) where the latest patches and public release updates are maintained. Access is immediate for first-time users. Call (215) 337-5815 (8,N,1).

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There is a generous amount of “play” when sliding the assembly in, but it is still easy to ensure alignment of the connector end of the PCB with the socket on the Performance Series II unit.

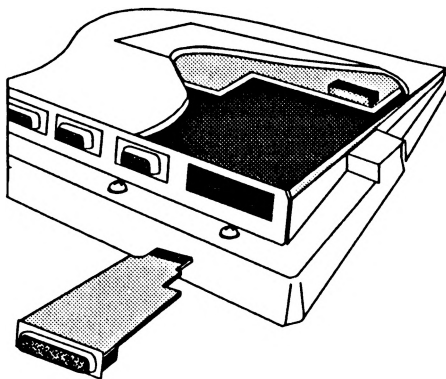


Figure 2.2 – Insert A1291 SCSI board.

- 4) Position the board so that it aligns with the connector on the underside of the Performance Series II unit, then press firmly until the A1291 SCSI board is fully seated.

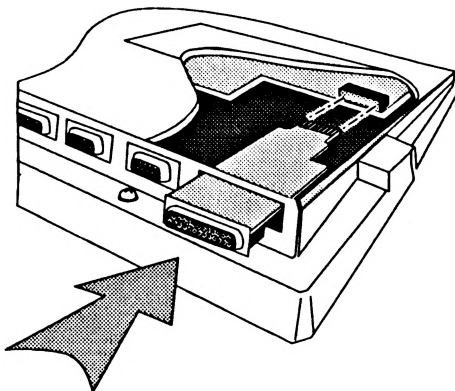


Figure 2.3 – Align connectors and press to seat.

NOTE

>>>

If you feel you need to see what's going on, you can remove the Expansion Bay cover, although this is best left in place to provide support for the Performance Series II unit.

- 5) When the two boards are correctly connected, the A1291 SCSI kit's external connector will be flush with the Amiga's rear panel. Secure it in place with the provided screw.

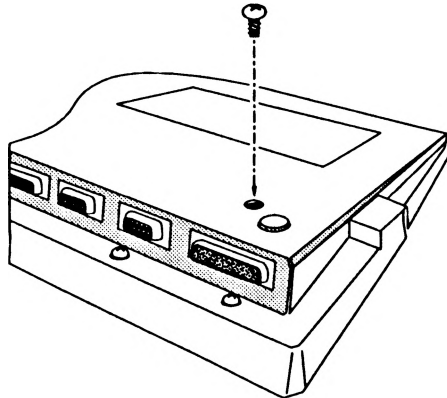


Figure 2.4 – Remove the keyboard assembly.

The A1291 external SCSI port is now connected and should work invisibly.

Continue to the next chapter for software installation and use instructions.

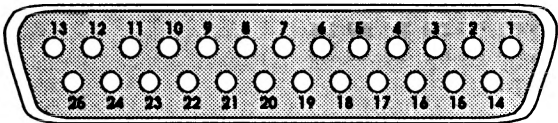


A. Technical Reference

The following chart summarizes the SCSI standard connector pin assignments. This information is provided for reference purposes only. GVP will not be responsible for any damage caused by use or misuse of this information.

External SCSI Connector (DB-25 Socket)

Accepts standard shielded DB-25-50-pin Centronics-type SCSI cables.



PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
1	REQ	9	GND	18	GND
2	MSG	10	DB(3)	19	SEL
3	I/O	11	DB(5)	20	DB(P)
4	RST	12	DB(6)	21	DB(1)
5	ACK	13	DB(7)	22	DB(2)
6	BSY	14	GND	23	DB(4)
7	GND	15	C/D	24	GND
8	DB(0)	16	GND	25	not used
		17	ATN		





QUESTION/PROBLEM:

SOLUTION:

- **I have a series of external SCSI devices connected to the SCSI Kit and I often get transfer errors or read/write errors that disappear when I click "Retry."**

- These conditions are symptomatic of SCSI bus termination problems.

The SCSI bus will support up to 7 external units. The more units that are connected, however, the longer the SCSI bus must be. Generally, the SCSI bus should always be electrically terminated (*this is illustrated more fully in the FaaastPrep 2.0 User's Guide*).

The A1291 SCSI Kit uses "Active Termination" to constantly (*and dynamically*) adapt to the changing termination needs of devices connected to it. However, **ONLY** the last unit on the bus should be terminated. Check to make sure that any intervening devices do **NOT** have termination resistors installed.

Consult the documentation that came with your SCSI devices. Some units have case-mounted switches for the enabling/disabling of termination. Other devices will require you to actually remove socketed resistor "packs."

- Make sure that all connecting cables are properly connected and securely fastened. Also make sure that the A1291 SCSI Kit is securely inserted into the socket on the Performance Series II expansion unit and has not become loose as a result of connecting external SCSI cables.

3. SCSI Software

When the Performance Series II A1291 SCSI Kit has been properly installed, it is ready for use with external SCSI hard drives and other devices. The SCSI driver is addressed as `gvp SCSI.device`.

The included *GVP_Install* floppy disk contains two programs for working with the Performance Series II SCSI controller and external SCSI devices:

- `FaaastPrep 2.0`
- `GVPSCSIctrl`

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Hard Drive Installation

If your system already includes a hard drive, you can install the GVP SCSI Utilities by double-clicking the **Install_SCSI_Utils** program icon. This automated installation script will copy all necessary programs to their proper destinations on your hard drive.

If you are adding a hard drive for the first time, you must run the software from the floppy disk until you have successfully mounted and formatted a hard drive partition. Thereafter, you may choose to install the SCSI control utilities on your new hard drive.



FaaastPrep 2.0

All hard drives that are connected to your Amiga SCSI system must be formatted with the Amiga's Operating System disk structure. Once this is done, the drive is capable of receiving and storing Amiga files and programs. The primary tool for working with hard drives is *FaaastPrep 2.0*.

Refer to the *FaaastPrep 2.0 User's Guide* (included separately in this package) for full details on the use of this program.

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GVPSCSIctrl

Several types of SCSI device exist that require additional software control:

- Removable media devices, such as Bernoulli, SyQuest or Ricoh cartridge drives, may or may not have a cartridge installed when the Amiga is started. The GVP SCSI system needs a way to detect when a cartridge is installed or changed.
- Some hard drives accept special settings that allow them to work more efficiently. Other hard drives cannot take advantage of these settings, so the default condition of the GVP SCSI driver is to not use them.
- Tape backup drives do not have the *Rigid Disk Block (RDB)* data structure that lets the GVP SCSI driver automatically detect information about the device. Such drives, therefore, need an alternative means of address.

Troubleshooting

NOTE: The following information is provided to assist you in determining the source of easily corrected problems. Be sure to read all of the Software Reference and to consult this Troubleshooting section before contacting GVP Technical Support.

QUESTION/PROBLEM:	SOLUTION:
<ul style="list-style-type: none"> When I connect an external SCSI device, it doesn't show up in FaaastPrep 2.0. 	<ul style="list-style-type: none"> Make sure the external SCSI device is powered on (<i>before the A1200</i>) and the cable is secure between it and the A1291 SCSI Kit port connector. Try using the <code>GVPSCSICtrl Rescan</code> and <code>Mount</code> instructions to locate the drive. Make sure that FaaastPrep is "examining" the correct SCSI ID Unit. In other words, if the connected device is Unit #2, then be sure that FaaastPrep is set to Unit #2.
<ul style="list-style-type: none"> When I access a SCSI device, the H.Disk LED on the Amiga 1200 doesn't indicate access. 	<ul style="list-style-type: none"> The H.Disk LED indicator on the A1200 is intended to show hard disk activity on the Amiga's IDE internal bus. If you have an internal (<i>IDE</i>) hard drive, this light will come on any time you are reading from or writing to the internal drive. <p>External SCSI devices will, most likely, have their own disk access indicator LEDs. These are usually prominently mounted on the front panels of disk or tape drive enclosures.</p>



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Start by copying GVPSCSIctrl and renaming it as **GVPSCSIctrl-TapeUnit**. Use the Workbench **Information** menu selection to access the Tooltype editor for this new icon.

Set Tooltype UNIT=<tape drive ID#>
Set Tooltype DISCONNECT=OFF

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GVPSCSIctrl-FastDrive

To take advantage of a high-performance hard drive, you may want to increase its share of DMA bus time. This special-use icon will cause GVPSCSIctrl to devote more bus time to the selected drive.

Start by copying GVPSCSIctrl and renaming it as **GVPSCSIctrl-FastDrive**. Use the Workbench **Information** menu selection to access the Tooltype editor for this new icon.

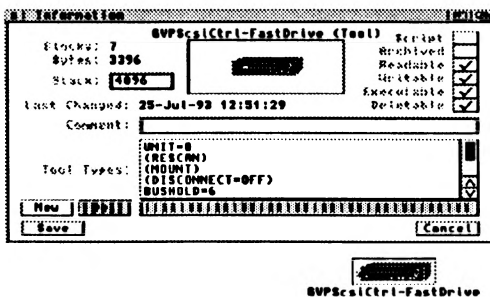


Figure 3.3 – Editing Tooltypes for GVPSCSIctrl-FastDrive.

Set Tooltype UNIT=<fast drive ID#>
Set Tooltype BUSHOLD=6



All of these functions are provided by the utility program *GVPSCSIctrl*.

NOTE: Users of previous GVP SCSI products (such as the A2000/3000 Series II hard cards, the A500 HD subsystems, etc.) are warned that this version of *GVPSCSIctrl* is completely different and NOT compatible with your older hardware.

Use this program only with a Performance Series II A1200 or A4000 expansion product. Use your original software with the older hardware products.

GVPSCSIctrl can be run from the CLI or AmigaDOS Shell, or by double-clicking its icon on the Workbench. It is important to note, however, that proper Workbench operation requires that appropriate icon Tooltypes be set. *GVPSCSIctrl* Tooltypes are identical to the command arguments, as noted below. Refer to your *Amiga User's Manual* for more information on editing and using Tooltypes in Workbench Icons.

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The command template for using *GVPSCSIctrl* from the CLI or Shell is:

```
GVPSCSIctrl <Arguments>
```

Acceptable arguments are as follows:

Unit

Tooltype: UNIT=<#> OR ALL

Shell Examples:

```
GVPScsiCtrl UNIT=4 DISCONNECT=OFF <return>
```

```
GVPScsiCtrl UNIT=ALL MOUNT <return>
```



Function:

The SCSI bus can manage up to 7 different SCSI devices, each identified by a unique Unit ID number.

The `unit` argument is either a number corresponding to the Unit ID number of the device you wish to address, or `ALL`, which addresses all possible Unit IDs.

Tooltype Detail:

When configuring an icon's Tooltypes to make a Workbench launchable version of `GVPSCSIctrl`, you will normally set a number of individual Tooltypes. The `unit` Tooltype is frequently used to specify a particular SCSI Unit to be addressed. Each icon can contain only one (1) `UNIT` Tooltype, however.

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Rescan

Tooltype: `RESCAN`

Shell Example: `GVPSCSIctrl RESCAN <return>`

Function:

At startup, the GVP SCSI driver "scans" the SCSI bus, looking for valid drives or other devices to mount and make available to the Amiga's filing system. If a hard drive was not powered up, or did not spin up to speed at the time of this initial scan, it will not be recognized by the system.

When the `Rescan` command is issued, `GVPSCSIctrl` will re-examine the SCSI Bus as if it were starting for the first time. This allows it to detect any drives that were missed and to bring them into the system.

The `GVPSCSIctrl Rescan` option can take several seconds to execute.

Start by copying GVPSCSIctrl and renaming it as **GVPSCSIctrl-Poll**. Use the Workbench *Information* menu selection to access the Tooltype editor for this new icon.

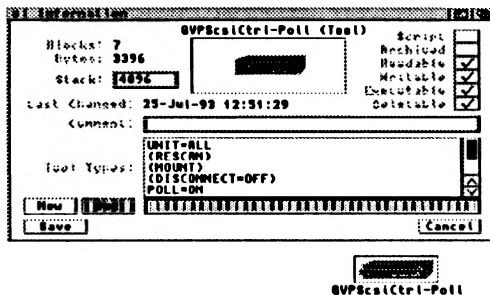


Figure 3.1 – Editing Tooltypes for GVPSCSIctrl-Poll.

Set Tooltype UNIT=ALL (optional)
Set Tooltype POLL=ON

GVPSCSIctrl-TapeUnit

Some models of Tape Drive, when disconnected, will “hang” or crash in the middle of a lengthy transfer. This special-use icon will prevent GVPSCSIctrl from disconnecting a backup Tape Drive.

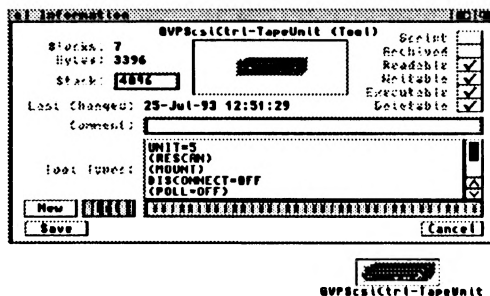


Figure 3.2 – Editing Tooltypes for GVPSCSIctrl-TapeUnit.



GVPSCSIctrl Help

Like most AmigaDOS commands, when you type:

```
GVPSCSIctrl ? <return>
```

a brief explanation of the command and its arguments will be displayed. If you type:

```
? <return>
```

again, more detailed information will be displayed.

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Making GVPSCSIctrl Workbench Tools

GVPSCSIctrl is very flexible and easy to use from the Amiga's CLI or Shell interfaces. If you want the same kind of flexibility in the Workbench point-and-click environment, you must do a little set-up work.

Start by making a *copy* of the GVPSCSIctrl icon. It is recommended that you give this copy a unique name reflecting the function it will serve. The examples below illustrate the creation of three such special-use copies of GVPSCSIctrl.

NOTE: The GVPSCSIctrl icon contains all possible Tooltypes enclosed in parentheses (). These are NOT active until the parentheses are removed.

GVPSCSctrl-Poll

This special-use icon will cause GVPSCSIctrl to continually poll all drives, looking for a data cartridge change. It can be run by double-clicking its icon, or by placing the icon into WBStartup.



NOTE: The **Rescan** command option will only locate SCSI devices. It does not mount them. See the **Mount** option, below.

Tooltype Detail:

When configuring an icon's Tooltypes to make a Workbench launchable version of GVPSCSICtrl, the **Rescan** Tooltype can be used by itself.

Mount

Tooltype: MOUNT

Shell Example:

```
GVPSCSICtrl UNIT=3 MOUNT <return>
```

Function:

The **Mount** command is used following a **Rescan**, to physically mount a SCSI device that was not automatically mounted at startup.

Whereas the AmigaDOS **Mount** command is used with a Mountlist text file, this option to the GVPSCSICtrl command causes the GVP SCSI driver to read the information stored in the drive's RDB.

Tooltype Detail:

When configuring an icon's Tooltypes to make a Workbench launchable version of GVPSCSICtrl, the **Mount** Tooltype is normally used in combination with a particular **Unit=<#>** or **Unit=ALL** Tooltype.



Disconnect

Tooltype: DISCONNECT=ON OR OFF

Shell Examples:

```
GVPSCSIctrl UNIT=2 DISCONNECT=ON <return>
```

This command tells the GVP SCSI controller that Unit 2 may be disconnected.

```
GVPSCSIctrl UNIT=0 DISCONNECT=OFF <return>
```

This command tells the GVP SCSI controller that Unit 0 should not be disconnected.

Function:

SCSI data transfers often occur faster than other parts of the computer system can keep up with. Therefore, some drives will transfer data in a rapid burst, then sit idle while a slower component processes the data.

Some SCSI devices are capable of disconnecting themselves from the SCSI bus when idle. This allows other SCSI units to use the bus during these idle periods. When the system is ready for it, the disconnected drive can then reconnect itself and transfer more data.

A SCSI device that does not support disconnect/reconnect will simply ignore any disconnect instructions. Certain drives that do not correctly support disconnect/reconnect may report errors while reading or writing. In such a case, the best solution is to switch disconnect/reconnect OFF.

FastPrep 2.0 allows you to specify disconnect/reconnect for each hard drive when it is formatted. This information becomes a permanent part of the RDB.

BusHold allows you to precisely control the duration that a single drive will be permitted to hold the Amiga's DMA data bus during heavy data transfer periods.

Some SCSI drives (*e.g.*: *Maxtor 540S*) are capable of very high throughput. Increasing the **BusHold** value allows such a drive greater access to the Amiga's DMA bus by reducing the CPU's access to it.

Obviously, any performance increase gained by raising the **BusHold** value can easily be lost if the CPU is denied bus access for too long. The point is to find the *minimum* **BusHold** value that will permit optimum disk performance without dragging down CPU performance.

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CAUTION: Setting **BusHold** too high can prevent other system DMA processes (like access to the computer's serial port, keyboard and mouse ports, etc.) from doing their work. The result can be lost characters, missed keystrokes, or "skips" in MIDI performances.

If this becomes a problem, reduce the **BusHold** value.

BusHold defaults to a value of 3. This is considered to be appropriate for most "normal" SCSI drives. It will accept values from 0 – 14, but should probably never be set higher than 6.

Tooltype Detail:

When configuring an icon's Tooltypes to make a Workbench launchable version of GVPSCSIctrl, the **BUSHOLD=<#>** Tooltype must be used in combination with a particular **UNIT=<#>** Tooltype.

**Function:**

When run from the CLI or Shell, most GVPSCSIctrl commands will return some form of result. If you specify the `quiet` argument, these results will not be displayed.

You would normally use the `quiet` argument when issuing GVPSCSIctrl commands in a startup-sequence or ARexx script.

Tooltype Detail:

When configuring an icon's Tooltypes to make a Workbench launchable version of GVPSCSIctrl, the `quiet` Tooltype may be used with any other Tooltypes to suppress result messages.

BusHold

Tooltype: `BUSHOLD=<#>`

Shell Example:

```
GVPSCSIctrl UNIT=1 BUSHOLD=6 <return>
```

sets `BusHold` for Unit 1 for a long duration. If the drive is not exceptionally fast, such a setting will have little benefit.

```
GVPSCSIctrl UNIT=5 BUSHOLD=1 <return>
```

sets `BusHold` for Unit 5 for a short duration.

Function:

Similar to the Disconnect/ Reconnect argument, the `BusHold` argument provides a way to take advantage of drives that have superior performance capabilities.



A Tape drive, however, has no RDB, so the GVP SCSI controller must assume that any such device is NOT capable of disconnect/reconnect, unless you tell it otherwise.

The `Disconnect` argument informs the GVP SCSI controller that the specified unit may or may not be disconnected.

Tooltype Detail:

When configuring an icon's Tooltypes to make a Workbench launchable version of GVPSCSIctrl, the `DISCONNECT=ON` OR `DISCONNECT=OFF` Tooltype must be used in combination with a particular `Unit=<#>` Tooltype.

3

Poll

Tooltype: `POLL=ON` OR `OFF`

Shell Examples:

```
Run >NIL: GVPSCSIctrl POLL=ON <return>
```

executes the command as a separate task and returns control to the calling CLI or Shell.

```
GVPSCSIctrl POLL=ON <return>
```

executes until the user types "Ctrl-C," or until the following command is issued from another Shell:

```
GVPSCSIctrl POLL=OFF <return>
```



Function:

Removable media drives (*SyQuest and Ricoh cartridge drives, for instance*) pose a unique problem to SCSI controllers: How to detect when a cartridge is inserted or swapped. The older Commodore A2091 controller required a “*Diskchange*” command to be sent any time a cartridge drive was changed.

The `POLL` argument tells GVPSCSIctrl to continually check each removable media drive attached to the SCSI bus. This allows it to *automatically* detect a data cartridge change within seconds.

The `POLL` argument will only detect media changes in drives that are “known” about. Consequently, if the device was not powered up when the computer was started, you will still need to send a `GVPSCSIctrl Rescan` instruction.

When the `POLL` argument is used, GVP-SCSIctrl will not return control to the CLI. Instead, it continues to execute until a “Break” signal (*Ctrl-C*) is received. It is, therefore, best to use the AmigaDOS *Run* command with this argument.

Tooltype Detail:

When configuring an icon’s Tooltypes to make a Workbench launchable version of GVPSCSIctrl, the `POLL=ON` or `POLL=OFF` Tooltype will normally be used by itself.



Full

Tooltype: FULL

Shell Examples: GVPSCSIctrl UNIT=4
DISCONNECT=OFF FULL <return>

produces the following result for a Quantum 105MB drive:

```
GVPScsiCtrl v 5.0 (c) 1993 GVP
-----
Unit=4, Type=DISK, Vendor=QUANTUM,
Product=LP105S, Revision=3.1, Auto-mounted,
Disconnect=OFF, BusHold=3, Ready.
```

3

Function:

When run from the CLI or Shell, most GVPSCSIctrl commands will return some form of result. If you specify the FULL argument, these results will be more detailed.

Tooltype Detail:

When configuring an icon's Tooltypes to make a Workbench launchable version of GVPSCSIctrl, the FULL Tooltype may be used by itself or with any other Tooltype. If GVPSCSIctrl is launched from an Icon with FULL specified, a separate output window will be opened to display the results.

Quiet

Tooltype: QUIET

Shell Example:
GVPSCSIctrl UNIT=ALL MOUNT QUIET <return>